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REMARKS

Claims 1, 2, 4-9, 11-15, and 17-31 are pending in the present application, Claims 1, 11, and 18-21 have been amended, Claims 5 and 13 have been deleted, leaving Claims 1, 2, 4, 6-9, 11-12, 14-15, and 17-31 for consideration upon entry of the present amendment. New Claims 32-34 have been added. Claims 1 and 11 have been amended to remove polycarbonate from the Markush group and Claims 18-21 have been amended to show proper dependency. New Claims 32-34 have been added to further define the composition as having the additive zinc oxide and/or zinc sulfide. Support for the additives can be found in the Specification as filed in the Experimental section on page 33. No new matter has been added by the amendments or new claims. Reconsideration and allowance of the objected to and rejected claims is respectfully requested in view of the preceding amendments and the following remarks.

Claim Rejections Under 35 U.S.C. § 112, Second Paragraph

Claims 1, 2, 4-9, 11-15, and 17-31 stand rejected under 35 U.S.C. § 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicants regards as the invention. In particular, the Examiner alleges "the Markush selection of polymer present in addition to the required PPO or PPO plus HIPS plastics closes the claims to the presence of other polymers" rendering the claims indefinite. (Office Action, 02/14/2002, page 3) Applicants respectfully disagree.

Applicants would like to respectfully point out that Claims 1, 2, 4, 6-9, 11, 12, and 14-15 do not contain PPO or PPO plus HIPS. Also, Claims 5 and 13 have been deleted by this amendment. Furthermore, Claims 17-31 do not contain Markush language.

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Accordingly, Applicants respectfully request reconsideration and removal of the § 112 rejections over Claims 1, 2, 4, 6-9, 11-12, 14-15, and 17-31.

The Examiner has argued that the language "blends containing polycarbonate resin" and "blends containing polyetherimide resin" lacks clarity because the remainder of the blend is infinite in scope. This language is only found in independent Claims 1 and 11 and their dependent claims. Markush language is absent from Claims 17-31. Claims 1 and 11 have been amended to remove the polycarbonate. Claims 1 and 11 have also been amended from "blends containing polyetherimide resins" to "polyetherimide resin blends". Claim 1 is reproduced below:

A plastic pallet comprising:
 one or more resins selected from the group consisting of:
 vinyl aromatic graft copolymer resin,
 polyetherimide resin,
 polyetherimide resin blends, and
 thermosetting resins;
 at least one flame retardant in an amount sufficient to impart a degree of flame retardancy to the pallet to pass UL 2335 protocol for pallets; and
 at least one impact modifier;
 wherein the pallet meets or exceeds Underwriters Laboratory UL 2335 protocol for pallets.

One of ordinary skill in the art would recognize that the term "blend" with regard to the claim language is polyetherimide blended with another compatible polymer. Since one of ordinary skill in the art would understand what polyetherimide blends are, Claims 1 and 11 do not lack clarity. Accordingly, Applicants respectfully request reconsideration and removal of the § 112 rejection of Claims 1 and 11 and their dependent Claims 2, 4, 6-9, 12, 14-15.

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Claims 26, 30, and 31 have been objected to by the Examiner under 37 CFR 1.75(b). Examiner argues that Claim 26 is a duplicate of Claim 17, Claim 30 is a duplicate of Claim 21, and Claim 31 is a duplicate of Claim 22. Applicants respectfully disagree for the following reasons.

Claim 26 contains "consisting" language, which is not found in Claim 17. Therefore, Claim 26 is not a duplicate of Claim 17, which contains "comprising" language.

Claim 30 is not a duplicate of Claim 21. Claim 21 ultimately depends from Claim 17 and Claim 17 contains "comprising" language. Claim 30 ultimately depends from Claim 26, which contains "consisting" language.

Claim 31 is not a duplicate of Claim 22. Claim 31 ultimately depends from Claim 26, which contains "consisting" language. Claim 22 depends from Claim 17, which contains "comprising" language.

For the forgoing reasons, Applicants respectfully request removal of the objection over Claims 26, 30, and 31.

Claim Rejections Under 35 U.S.C. § 102(b)

Claims 17-22 stand rejected under 35 U.S.C. § 102(b), as allegedly anticipated by Nakano et al., U.S. Patent No. 5,165,990 (Nakano). Applicants respectfully traverse this rejection.

Claim 17, from which 18-22 ultimately depend, is directed to a plastic pallet comprising a polyphenylene ether resin, a high impact polystyrene, at least one flame retardant in an amount sufficient to impart a degree of flame retardancy to the pallet to pass

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UL 2335 protocol for pallets and at least one impact modifier; wherein the pallet meets or exceeds Underwriters Laboratory UL 2335 protocol for pallets.

Nakano generally describes a stampable sheet comprising a styrene polymer and fibrous filler.

To anticipate a claim, a reference must disclose each and every element of the claim. *Lewmar Marine v. Variant Inc.*, 3 U.S.P.Q.2d 1766 (Fed. Cir. 1987).

Applicants respectfully contend that Nakano fails to teach each and every element of Claim 17. Nakano fails to teach a pallet that meets or exceeds the Underwriters Laboratory UL 2335 protocol for pallets or, alternatively, Nakano fails to teach at least one flame retardant in an amount sufficient to impart a degree of flame retardancy to the pallet to pass UL 2335 protocol for pallets. Not all plastic pallets meet the requirements of UL 2335 (see attached article regarding UL plastic pallet classification for fire hazards obtained from www.ul.com/auth/tca/v7n1/fuel.html):

Many different types of plastics are used to make pallets. Most plastics burn hotter and faster than wood, but some plastics can be engineered to perform equally well or better than wood pallets during a fire in idle storage and commodity classification tests. *However, not all plastics are created equal.* Recent changes in the 1998 editions of NFPA 231 and NFPA 231C allow some "NFPA listed" plastic pallets to be regulated like wood pallets, if test data can demonstrate that the burning and suppression characteristics of plastic pallets are equivalent to or better than wood pallets. (emphasis added)

Although there are "many different types of plastics" for pallets, Underwriters Laboratories Inc., a leader in product safety testing and certification, has determined that "pallets manufactured by GE Plastics, of Pittsfield, Mass. were the first to earn certification under UL's Plastic Pallet Classification Program". (emphasis added;

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Laboratory UL 2335 protocol for pallets or, alternatively, Nakano fails to teach at least one flame retardant in an amount sufficient to impart a degree of flame retardancy to the pallet to pass UL 2335 protocol for pallets. Accordingly, Applicants respectfully request the reconsideration and removal of the 35 U.S.C. § 103(a) rejections of Claims 17-22.

Claims 23-31 stand rejected under 35 U.S.C. § 103(a), as allegedly unpatentable over Nakano, further in view of Haaf et al., U.S. Patent No. 4,355,126 (Haaf I), or Haaf et al., U.S. Patent No. 4,191,685 (Haaf II); further in view of Fowler et al., U.S. Patent No. 3,951,078 (Fowler I); Fujii et al., U.S. Patent No. 5,334,636 (Fujii); and Abolins, U.S. Patent No. 4,692,490 (Abolins).

Haaf I generally describes flame retardant, non-dripping compositions of polyphenylene ether resins or acrylonitrile-butadiene-styrene copolymers.

Haaf II generally describes compositions of polyphenylene ether, aromatic phosphate, aromatic halogen compound and an impact modifier comprising diene polymer.

Fowler I generally describes a plastic pallet. Polyphenylene ether is not mentioned.

Fujii generally describes a thermoplastic composition comprising a polyphenylene ether resin and optionally a styrene resin and optionally an impact strength improving polymer.

Abolins generally describes a flame retardant polyphenylene ether composition containing high impact polystyrene. Polybrominated diphenoxybenzene and antimony are used as the flame retardant combination.

Applicants respectfully contend that Claims 23-31 have not been rendered obvious by Nakano, Haaf I, Haaf II, Fowler I, Fujii, or Abolins, alone or in combination.

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For an obviousness rejection to be proper, the Examiner must meet the burden of establishing that all elements of the invention are disclosed in the prior art; that the prior art relied upon, coupled with knowledge generally available in the art at the time of the invention, must contain some suggestion or incentive that would have motivated the skilled artisan to modify a reference or combined references; and that the proposed modification of the prior art must have had a reasonable expectation of success, determined from the vantage point of the skilled artisan at the time the invention was made. *In re Fine*, 5 U.S.P.Q.2d 1596, 1598 (Fed. Cir. 1988).

Claims 23 and 26 are reproduced below:

23. A method for making a plastic pallet comprising:
injection molding a composition comprising polyphenylene ether resin; a high impact polystyrene; at least one flame retardant in an amount necessary to impart a degree of flame retardancy to the pallet to pass the UL 2335 protocol for pallets; at least one impact modifier; wherein the pallet meets or exceeds Underwriters Laboratory UL 2335 protocol for pallets.

26. A plastic pallet consisting of:
polyphenylene ether resin;
high impact polystyrene;
at least one flame retardant;
at least one additive; and
at least one impact modifier;
wherein the pallet meets or exceeds Underwriters Laboratory UL 2335 protocol for pallets.

Claims 24-25 and 27-31 ultimately depend from Claims 23 and 26, respectfully.

Applicants respectfully argue that the claim element of a pallet that meets or exceeds Underwriters Laboratory UL 2335 protocol for pallets has not been disclosed in the above cited references. This limitation is found in all of the present claims. Alternatively, the claim element found in Claims 23-25 of at least one flame retardant in an amount necessary to impart a degree of flame retardancy to the pallet to pass UL 2335 protocol for pallets has

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also not been disclosed in the above cited references. For the foregoing reasons, Applicants contend that Claims 23-31 have not been rendered obvious by Nakano, Haaf I, Haaf II, Fowler I, Fujii, or Abolins, alone or in combination.

Notwithstanding the above argument, an Examiner cannot establish obviousness by locating references that describe various aspects of a patent applicant's invention without also providing evidence of the motivating force which would have impelled one skilled in the art to do what the patent applicant has done. *Ex parte Levengood*, 28 U.S.P.Q. 1300 (Bd. Pat. App. Int. 1993). The references, when viewed by themselves and not in retrospect, must suggest the invention. *In Re Skoll*, 187 U.S.P.Q. 481 (C.C.P.A. 1975).

None of the references alone or in combination teach or suggest the method as found in Claim 23. Claim 23 is directed to a method for making a plastic pallet comprising injection molding a composition comprising polyphenylene ether resin; a high impact polystyrene; at least one flame retardant in an amount necessary to impart a degree of flame retardancy to the pallet to pass the UL 2335 protocol for pallets; at least one impact modifier; wherein the pallet meets or exceeds Underwriters Laboratory UL 2335 protocol for pallets.

Examiner argues that it would be obvious to adopt Fowler's teaching of injection molding a pallet to Nakano's composition, which is stamp molded because

Fowler discloses...that thermoplastics inclusive of ABS type styrene resins are ordinarily formed by either Nakano's stamp molding or injection molding into open-hole containing pallets, it would be obvious to adopt this alternative technique in utilizing Nakano's composition as an entirely injection molded composition. (Office Action, 02/14/02, page 3)

Applicants respectfully disagree. An artisan would not be motivated to combine Fowler's teaching of injection molding pallets with Nakano's composition. First, Fowler

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does not teach or suggest pallets comprising polyphenylene ether, nor does Fowler teach pallets comprising fiber reinforcement as found in Nakano's composition. Since Fowler's compositions are different from Nakano's, there is no motivation to combine or modify their teachings as suggested by the Examiner.

Examiner further argues that Haaf I and II teach injection molding of compositions with fibrous fillers. An artisan would not be motivated to combine Nakano's stampable sheet composition with Haaf I and II and Fowler, because although Fowler suggests that pallets can be formed by injection molding, Fowler does not teach or suggest polyphenylene ether pallets, and Haaf I and II do not teach or suggest injection molding polyphenylene ether compositions into articles as large as pallets. Neither Fujii nor Abolins provides the motivation or suggestion to modify Fowler and Nakano to injection mold a pallet comprising Nakano's composition.

Furthermore, although it is known that polyphenylene ether resins may be injection molded, none of the references teach injection molding polyphenylene ether articles of the size that is required to make the pallets of the present disclosure. As outlined in the Specification on page 4, the pallets are made from 2" x 4" x 48" studs or made into 48" x 40" sized dimensions. It is not an insignificant fact that these parts formed by injection molding are so large in size. It is known in the art that intrinsic viscosity of a resin affects both the flame retardancy and the processability of the resin. In general, to obtain good flame retardancy, a resin of higher intrinsic viscosity is desired. In general, for processability, especially in injection molding, the intrinsic viscosity of the resin must not be too high that the resin fails to fill the entire mold in the time demanded. If the intrinsic viscosity of the resin is too high, the mold may not be filled completely or the molding cycle time may be

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hindered. The Applicants have found the right balance in the composition to successfully injection mold a polyphenylene ether article into a size suitable to make a pallet. The balance achieved provides processability, while at the same time rendering the pallet able to meet or exceed UL 2335. Accordingly, Applicants respectfully argue that method Claim 23 has not been rendered obvious over the teachings of Nakano, Haaf I, Haaf II, Fowler I, Fujii, or Abolins, alone or in combination. Claims 24 and 25 ultimately depend from Claim 23 and are, therefore, also not rendered obvious.

Claim 26 is directed to a plastic pallet consisting of polyphenylene ether resin, high impact polystyrene, at least one flame retardant, at least one additive, and at least one impact modifier, wherein the pallet meets or exceeds Underwriters Laboratory UL 2335 protocol for pallets. Claims 27-31 ultimately depend from Claim 26. None of the references, alone or in combination, teach the limitation of a pallet consisting of the foregoing components meeting or exceeding the UL 2335 protocol for pallets. Therefore, Claims 26-31 have not been rendered obvious over the above cited references. The Applicants respectfully request reconsideration and removal of the § 103(a) rejections of Claims 26-31.

Claims 1, 2, 4-6 and 9-13 stand rejected under 35 U.S.C. § 103(a), as allegedly unpatentable over Alexander et al., U.S. Patent No. 5,492,069 (Alexander) in view of Fuhr et al., U.S. Patent No. 5,157,065 (Fuhr).

Alexander generally describes a polymer pallet assembly.

Fuhr generally describes a polycarbonate molding composition with flame-resistant properties.

Claims 5 and 13 have been deleted. As amended, Claims 1 and 11 are directed to a plastic pallet and a method for making a plastic pallet wherein the plastic pallet meets or exceeds the UL 2335 protocol and comprises at least one flame retardant, at least one impact modifier and one or more resins selected from the group consisting of polyetherimide, polyetherimide blends, vinyl aromatic graft copolymers and thermosetting resins.

Applicants respectfully contend that Alexander and Fuhr fail to disclose each and every element of Claims 1 and 11. First, the references fail to teach or suggest a polyetherimide at all, let alone a polyetherimide pallet, or more specifically a pallet comprising polyetherimide, an impact modifier, and a flame retardant. Secondly, the references fail to teach a pallet that meets or exceeds the Underwriters Laboratory UL 2335 protocol for pallets. Since Claims 2, 4, 6, 9-10 and 12 ultimately depend from Claims 1 and 11, they too have not been rendered obvious in view of Alexander and Fuhr. Accordingly, Applicants respectfully request the reconsideration and removal of the 35 U.S.C. § 103(a) rejections of Claim 1, 2, 4-6 and 9-13.

Claims 1, 7, 8, 14 and 15 stand rejected under 35 U.S.C. § 103(a), as allegedly unpatentable over Alexander and Fowler et al. U.S. Patent No. 4,007,694 (Fowler II) or Fowler U.S. Patent No. 3,814,031 (Fowler III), taken with Miller U.S. Patent No. 3,405,666, (Miller) and Duhnkrack et al U.S. Patent No. 2,877,204 (Duhnkrack) or Serafini et al., U.S. Patent No. 5,461,138 (Serafini).

Fowler II generally describes a unitary plastic pallet.

Fowler III generally describes a plastic pallet.

Miller generally describes a pallet assembly.

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Duhnkrack generally describes a flame resistant polyester composition containing a halogenated phosphonate.

Serafini generally describes prepolymer compositions for polyimides.

As amended, Claim 1 has not been rendered obvious over Alexander, Fowler II, Fowler III, Miller, Duhnkrack and/or Serafini as these references alone or in combination do not teach all of the claim limitations. The foregoing references fail to teach or suggest a polyetherimide at all, let alone a polyetherimide pallet, or more specifically a pallet comprising polyetherimide, an impact modifier, and a flame retardant. Secondly, the references fail to teach a pallet that meets or exceeds the Underwriters Laboratory UL 2335 protocol for pallets. Since Claims 7 and 8 ultimately depend from Claim 1, they too have not been rendered obvious. Claim 14 is directed to polyetherimides and none of the references disclose polyetherimides. All of the claims contain the limitation of a pallet meeting or exceeding UL 2335. Accordingly, Applicants respectfully request reconsideration and removal of the 35 U.S.C. § 103(a) rejections over Claims 1, 7, 8, 14 and 15.

Based on the foregoing arguments, the Applicants respectfully request reconsideration and removal of the § 103(a) rejections for Claims 1, 2, 4, 6-9, 11-12, 14-15, and 17-31.

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It is believed that the foregoing amendments and remarks fully comply with the Office Action and that the claims herein should now be allowable to Applicants. Accordingly, reconsideration and allowance is requested.

If there are any additional charges with respect to this Amendment or otherwise, please charge them to Deposit Account No. 07-0862 maintained by Assignee.

Respectfully submitted,

CANTOR COLBURN LLP

By: Patricia S. DeSimone
Patricia S. DeSimone
Registration No. 48,137

Roberta L. Pelletier
Registration No. 46,372

Date:	January 17, 2003
Customer No.:	23413
Telephone:	(860) 286-2929

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VERSIONS WITH MARKINGS TO SHOW CHANGES MADE

A marked-up version of the Specification on page 4, paragraph 3 follows:

Suitable pallet designs include all pallets known in the art including, for example, designs disclosed in U.S. Design Patents 246,296, 296,599, and 315,240, in addition to U.S. Patents 3,331,336, 3,405,666, 3,610,173, 3,664,271, 3,750,596, 3,824,933, 5,505,141, 5,520,121, 5,527,585, and co-pending and commonly owned application Serial Number 09/087,175, now abandoned.

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A marked-up version of Claims 1, 11, and 18-21 follows:

1. (Five times amended, marked-up) A plastic pallet comprising:

one or more resins selected from the group consisting of:

~~polycarbonate resin,~~

~~blends containing polycarbonate resin,~~

vinyl aromatic graft copolymer resin,

polyetherimide resin,

~~blends containing polyetherimide resin~~ blends, and

thermosetting resins;

at least one flame retardant in an amount sufficient to impart a degree of flame retardancy to the pallet to pass UL 2335 protocol for pallets; and

at least one impact modifier;

wherein the pallet meets or exceeds Underwriters Laboratory UL 2335 protocol for pallets.

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11. (Five times amended, marked-up) A method for making a plastic pallet comprising:

molding a composition comprising at least one flame retardant in an amount sufficient to impart a degree of flame retardancy to the pallet to pass UL 2335 protocol for pallets; at least one impact modifier; and one or more other resins selected from the group consisting of:

~~polycarbonate resin;~~

~~blends containing polycarbonate resin;~~

vinyl aromatic graft copolymer resin,

polyetherimide resin,

~~blends containing polyetherimide resin~~ blends, and

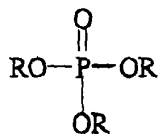
thermosetting resins; and

wherein the pallet meets or exceeds Underwriters Laboratory UL 2335 protocol for pallets.

18. (Amended, marked-up) The plastic pallet of Claim ~~16~~-17, further comprising linear low density polyethylene.

19. (Amended, marked-up) The plastic pallet of Claim ~~16~~-17, wherein the flame retardant is an organophosphate.

20. (Amended, marked-up) The plastic pallet of claim ~~18~~19, wherein the organophosphate is an aromatic phosphate compound of the formula



where R is the same or different and is alkyl, cycloalkyl, aryl, alkyl substituted aryl, halogen substituted aryl, aryl substituted alkyl, halogen, or a combination of any of the foregoing, provided at least one R is aryl.

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21. (Amended, marked-up) The plastic pallet of claim ~~16~~-17, wherein the pallet comprises:

about 30 to about 70 parts of the polyphenylene ether resin,
about 20 to about 60 parts of the high impact polystyrene resin, and
about 10 to about 30 parts of the organophosphate, wherein all weights are based on 100 parts by weight of the polyphenylene ether resin, high impact polystyrene resin and organophosphate together.

Adding fuel to the fire?

UL Classifies plastic pallets for fire hazards

Every year, the United States produces more than 400 million storage pallets. Most of them are made from wood, but soon many of the new pallets will be made from plastic. Why? Because plastic is easier to clean and recycle.

Unfortunately, wood and plastic pallets also pose a severe fire threat, and their use in warehouses is strictly regulated by model building codes. NFPA 231, Standard for General Storage, and NFPA 231C, Standard for Rack Storage of Materials, both contain allowances for storage on plastic pallets. There are also separate requirements for idle or empty pallets, as well as protection of the commodities stored on pallets, such as providing sufficient sprinkler protection and stacking configurations. Requirements for generic plastic pallets, however, are much more severe than those for wood.



Many different types of plastics are used to make pallets. Most plastics burn hotter and faster than wood, but some plastics can be engineered to perform equally well or better than wood pallets during a fire in idle storage and commodity classification tests.

However, not all plastics are created equal. Recent changes in the 1998 editions of NFPA 231 and NFPA 231C allow some "NFPA listed" plastic pallets to be regulated like wood pallets, if test data can demonstrate that the burning and suppression characteristics of plastic pallets are equivalent to or better than wood pallets.

Earlier this year, UL conducted a series of fire tests in its Large-Scale Fire Test Facility in Northbrook, Ill. These tests were used to measure the burning and suppression characteristics of wood pallets. Wood pallets were stacked beneath a sprinklered ceiling and ignited. Other tests measured the effects of fire on commodity classifications stored on different wood types. The results of these tests were used to develop a baseline for comparison with plastic pallets.

Data collected from this research were used to develop a new Standard, UL 2335, Classification Flammability of Plastic Pallets. Test protocol for UL 2335 includes idle storage and commodity classification tests, consistent with the requirements of NFPA 231 and NFPA 231C. Plastic pallets must perform better or equal to wood pallets in both tests to meet the requirements of UL 2335.

For example, the time allowed for fire to spread to the end of plastic pallet stacks during an idle storage test is seven minutes or more, because the fire spread on wood pallets takes seven minutes. Other criteria used to compare the behavior of plastic pallets to wood during fire testing are the number of activated sprinklers, structural steel temperatures and stack stability.

Commodity classification tests are conducted using a standard Class II commodity stored on plastic pallets. Class II commodities include items such as glass bottles filled with non-flammable liquids (e.g., juices, soft drinks), metals or noncombustible food items (e.g., frozen foods, meats, produce) stored in paper wrappings, slatted wooden crates, or corrugated cardboard boxes of various thicknesses. Commodities are ranked Class I,

II, III or IV, with Class I being the least hazardous and Class IV being the most hazardous.

These tests measure the amount of heat released by commodities or contents stored on plastic pallets, such as those found in real-life warehouse applications. If heat release results demonstrate that the plastic pallets do not increase the heat generated by the Class II commodities during the fire test, then the commodity classification of the plastic pallets is equivalent to wood.

Pallets manufactured by GE Plastics, of Pittsfield, Mass., were the first to earn certification under UL's Plastic Pallet Classification Program. In idle storage tests, the GE Plastics pallets activated nine fewer sprinklers than the minimum of 13 allowed for wood pallets. Sprinklers also extinguished the fire in less than 15 minutes, compared to 30 minutes or more for wood pallets. In addition, the Class II ranking did not change the classification of commodities stored on the pallets made by GE Plastics.

Plastic pallets evaluated by UL will carry a Classification label indicating they have met the requirements of UL 2335. UL expects to send a first draft of UL 2335 out for public comment in early 1999. For more information about UL's Plastic Pallet Classification Program, call Chris McKeever in Northbrook, Ill., at +1-847-272-8800, ext. 43584; or fax him at +1-847-272-2020.

This information is from a printed version of our newsletter, and is presented here for archival purposes only. For current information, please see the UL webpage devoted to this subject.

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